Osteoarthritis and Cartilage (2000) **8**, Supplement A, S11–S13
© 2000 OsteoArthritis Research Society International
doi:10.1053/joca.2000.0328, available online at http://www.idealibrary.com on IDEAL®
1063–4584/00/0A0S11+03 $35.00/0

Osteoarthritis and Cartilage
Journal of the OsteoArthritis Research Society International

Prevalence of symptomatic hand osteoarthritis in community-dwelling older persons: the ICARe Dicomano study

A. Mannoni*, M. P. Brigantit, M. Di Bari†‡, L. Ferrucci§, U. Serni*, G. Masotti† and N. Marchionni†
*Division of Rheumatology I.O.T., Azienda Sanitaria di Firenze, Firenze, Italy
†Department of Gerontology and Geriatric Medicine, University of Florence, Florence, Italy
‡Azienda Ospedaliera Careggi, Florence, Italy
§INRCA Geriatric Department 'I Fraticini', Florence, Italy

Summary

Objective: To assess whether the American College of Rheumatology (ACR) classification criteria for hand osteoarthritis (OA) may be used successfully to detect hand OA in population-based studies and to estimate the prevalence of hand OA in an elderly italian population.

Design: This study was part of a cross-sectional population-based survey on heart failure in the elderly (ICARe Dicomano study). All community-dwelling citizens aged >65 were considered eligible and screened by expert geriatricians for the presence of major chronic conditions, including hip, knee and hand OA, using custom-made algorithms based on standard criteria. Those subjects who screened positively were subsequently assessed by a rheumatologist.

Results: Six hundred and ninety-seven subjects (80% of the eligible population) underwent a general examination by a geriatrician. One hundred and thirty-nine of these met the ACR criteria for hand OA at screening: 22 subjects with isolated first carpometacarpal (CMC) joint OA and 117 with generalized nodal OA. 74.2% of the diagnoses were confirmed in the 101 participants re-examined in a second phase by a rheumatologist (19 subjects presented with isolated thumb-base OA and 56 with nodal OA). The estimated prevalence in the cohort was 14.9%.

Conclusions: The ACR clinical criteria for hand OA may be used in population studies, especially when the burden of this disease is evaluated. © 2000 OsteoArthritis Research Society International

Key words: Hand osteoarthritis, Elderly, Epidemiology.

Introduction

The definition of osteoarthritis (OA) in epidemiological studies has been traditionally based on radiological criteria. However, the American College of Rheumatology (ACR) suggested that clinical examination has more value than radiography for classifying symptomatic hand OA, and proposed classification criteria based only on clinical findings.[1] Whether these criteria specifically identify persons affected by hand OA in the general population is uncertain. In a population-based epidemiological study of independently-living older adults, we assessed the agreement between a geriatrician, who applied the ACR criteria, and a rheumatologist on the diagnosis of hand OA. Our secondary purpose was also to estimate the prevalence of hand OA in a population-based sample of older persons.

The present study is part of a cross-sectional population-based survey on heart failure in the elderly ('Insufficienza Cardiaca negli Anziani Residenti a Dicomano', ICARe Dicomano Study). The general aim of the study is to investigate the burden of heart failure on physical functioning, either in the presence or absence of co-morbidity.[2] To this purpose, several chronic comorbidities were considered, including knee, hip and hand OA. All community-dwelling citizens aged ≥65 years recorded in the City Registry Office of Dicomano, a small rural town near Florence in Italy, were considered eligible. Multidimensional geriatric assessment was carried out with home interview, laboratory testing and clinical examination.

Methods

The clinical evaluation was carried out by expert geriatricians. The presence of major chronic conditions was ascertained by standardized algorithms, based largely on clinical examination. This methodology was also used to diagnose rheumatic diseases, which were subsequently confirmed by a rheumatologist, according to a two-step procedure. In the first step, participants were diagnosed by the geriatrician as having symptomatic hand OA if they met the ACR criteria (Table I).

Joint radiographs were not routinely available and therefore radiographic criteria for OA were not considered. Persons who screened positive were subsequently evaluated by a rheumatologist. Since some participants who screened positive were not subsequently re-examined by the rheumatologist (drop-outs), to estimate the prevalence of the disease in the wnole study population we assumed

Sources of support: Sponsored in part by the Italian Ministry of the University and Scientific and Technological Research (National Special Project on Heart Failure), and by the Regional Government of Tuscany.

Address correspondence to: Dr Alessandro Mannoni, Division of Rheumatology I.O.T., viale Michelangelo, 41, 50125 Firenze, Italy. Tel: 39-055-6577-1; Fax: 39-055-680873; E-mail: alemannoni@tin.it

Table I
The modified American College of Rheumatology criteria for the classification and reporting of hand OA

1. Hand pain, aching, or stiffness for at least 1 month any time prior to the interview
   and
2. Hard tissue enlargement of >2 of 10 selected hand joints
   and
3. Metacarpophalangeal (MCP) joint swelling in <2 joints
   and either
4. (a) Hard tissue enlargement of >1 distal interphalangeal (DIP) joint
   or
   (b) deformity of >1 of 10 selected hand joints*

*Selected hand joints are the second and third distal interphalangeal and proximal interphalangeal and the first carpometacarpal of both hands.

Table II
Subsets of hand OA in the Dicomano cohort

	No. of subjects	%
Isolated right thumb-base OA	5	6.7
Isolated bilateral thumb-base OA	12	16.0
Isolated left thumb-base OA	2	2.7
Right thumb-base+nodal OA	1	1.3
Left thumb-base+nodal OA	3	4.0
Nodal OA	16	21.3
Bilateral thumb-base+nodal OA	36	48.0

that the performance of the algorithm (proportion of confirmed diagnoses) was similar in the drop-outs.

Statistical analyses were performed using SPSS package, version 6.1.

Results

The eligible population included 864 subjects, of whom 697 (80%) underwent the geriatric visit. Due to cognitive impairment or to missing data, screening for the presence of hand OA is available in 693 subjects (women: 406, 58.6%; mean age 74.1±6.8).

At the screening 139 participants met the ACR criteria for the diagnosis of hand OA. In 22 of them the carpometacarpal was the only joint involved (thumb-base OA), while 117 were affected by nodal OA, with or without thumb-base involvement. The rheumatologist applied the ACR criteria and confirmed 74.2% of the diagnosis in the 101 participants who were re-examined in the second step: 19 subjects had thumb-base OA and 56 nodal OA, with or without thumb-base involvement.

The different subsets of hand OA found in the elderly population of Dicomano are shown in Table II. When the 74.2% proportion of confirmed diagnoses was projected to the 38 drop-outs, the number of presumably correct diagnoses was 28.1. Therefore, the estimated prevalence of hand OA in the whole cohort was 14.9% (75 cases confirmed+28.1 cases estimated out of 693).

Discussion

The results of this study show a good concordance between the diagnosis of hand OA made by physicians with no specific clinical background on joint diseases who used standard criteria and those performed by an expert rheumatologist. Similar results were obtained by a recent study[3] which examined the ability of trained metrologists to detect clinical OA in a random Australian population in comparison with expert rheumatologists. These data suggest that the ACR clinical criteria for hand OA can be also successfully used by non-rheumatologists.

Prevalence of hand OA varies widely in medical literature, perhaps owing to different methodologies used for disease definition. Prevalence data of hand OA in elderly populations obtained using radiological criteria reach very high figures,[4] which probably overestimate the real impact of the disease in the population.

On the other hand, the use of OA clinical criteria in epidemiological settings may be biased as well. In an elderly Iceland population, Aspelund *et al.*[5] observed that the prevalence of hand OA greatly differed according to the phrasing of the questions regarding the frequency and timing of pain. Moreover, in the same population the symptoms were unevenly reported over time with 30% disagreement in a 6-month period. The use of OA clinical criteria seems also to produce low prevalence figures in population studies because of their poor sensitivity.[6] In our study, subjects who screened negatively were not subsequently evaluated by the rheumatologist; therefore we were unable to estimate the rate of false negatives in our population. However, the prevalence of hand OA found in Dicomano is not low, probably because of the use of an 'ever' criteria for the presence of hand pain, which has been suggested for the epidemiological identification of cases of rheumatoid arthritis.[7] The use of less restricted symptomatic definition could probably improve the performance of clinical criteria when used in population studies.

Acknowledgments

We are sincerely grateful to Dr Roy Altman, Dr Marc Hochberg, and Dr Marco Cimmino for their suggestions, help and support.

References

1. Altman RD, Alarcon G, Appelrouth D, Bloch D, Borenstein K, Brandt K, et al. The American College of Rheumatology criteria for the classification and reporting of osteoarthritis of the hand. Arthritis Rheum 1990;33:1601–10.
2. Di Bari M, Marchionni N, Ferrucci L, Pini R, Antonini E, Chiarlone M, et al. Heart failure in community-dwelling older persons: aims, design and adherence rate of the ICARe Dicomano Project, an epidemiologic study. J Am Geriatr Soc 1999;47:664–71.
3. March LM, Schwarz JM, Carfrae BH, Bagge E. Clinical validation of self-reported osteoarthritis. Osteoarthritis Cart 1998;6:87–93.
4. Petersson IF. Occurrence of osteoarthrtis of the peripheral joints in European populations. Ann Rheum Dis 1996;55:659–64.
5. Aspelund G, Gunnarsottir S, Jonsson P, Jonsson H. Hand osteoarthritis in the elderly Application of clinical criteria. Scand J Rheumatol 1996;25:34–6.

6. Spector TD, Hart DJ, Leedham-Green M. The prevalence of knee and hand osteoarthritis in the general population using different clinical criteria: the Chingford study. Arthritis Rheum 1991;34:S171 (abstract).

7. Mac Gregor AJ, Bamber S, Silman AJ. A comparison of the performance of different methods of disease classification for rheumatoid arthritis. Results of an analysis from a nationwide twin study. J Rheumatol 1994;21:1420–6.